

REMARKS/ARGUMENTS

Claims 3-12, 15-24, and 27-36 are pending in the present application. Claims 15-24, and 27-36 were canceled; claims 3, 6, 7 and 12 were amended; and claims 37-41 were added. Support for the amendments to the claims and for the newly added claims may be found in the specification on at least page 12, lines 12-26, page 17, lines 16-21, page 11, lines 25-31, page 15, lines 1 – 21, page 14, lines 16-26, and page 13, lines 16-26. Reconsideration of the claims is respectfully requested.

Applicants have amended some claims and canceled others. Applicants do not concede that the subject matter encompassed by the earlier presented claims is not patentable over the art cited by the Examiner. Applicants canceled and amended claims in this response solely to facilitate expeditious prosecution of this application. Applicants traverse all rejections and respectfully reserve the right to pursue the earlier-presented claims, and additional claims, in one or more continuing applications.

I. 35 U.S.C. § 101

The Office Action has rejected claims 15-24 and 27-36 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

Regarding this rejection, the Office Action states:

Claims 15-24 are directed toward means for performing various functions. The means presented in the specification are software per se. See figure 2. No hardware means are presented in the specification. Claims 27-36 are directed to a computer program product on a computer readable medium. Applicant broadened the definition of computer readable medium to include "transmission-type media, such as digital and analog communications links." Specification, page 10, lines 5-9. Transmission type media are not statutory subject matter. *In re Nuitjen*.

Office Action dated February 12, 2008, p. 2 (emphasis in original).

Applicants have canceled claims 15-24 and 27-36. Therefore, the rejection is moot.

II. 35 U.S.C. § 102, Anticipation

The Office Action has rejected claims 3-12, 15-24, and 27-36 under 35 U.S.C. § 102 as being anticipated by *Masters et al., Load Balancing Between E-mail Servers within a Local Area Network*, U.S. Patent No. 5,872,930, February 16, 1999 (hereinafter “*Masters*”). This rejection is respectfully traversed.

Regarding this rejection, the Office Action states:

In regard to claim 3, 15, 27, Masters disclosed:
initializing one or more local service managers within the distributed data processing system, wherein each local service manager provides access to networked services for clients within the distributed data processing system, and wherein each client is uniquely associated with a local service manager; column 10, lines 59-67

initializing one or more distributed service managers within the distributed data processing system, wherein each distributed service manager provides access to networked services to local service managers within the distributed data processing system, and wherein each local service manager is uniquely associated with a distributed service manager; column 11, lines 1-14

receiving, at a distributed service manager, a request for a networked service from a local service manager; column 10, lines 59-67; column 11, line 61 - column 12, line 13

determining whether the distributed service manager has information about a networked service with one or more characteristics that match one or more parameters in the request for a networked service; and column 10, lines 59-67

returning information about a matched networked service from the distributed service manager to the local service manager. Column 10, lines 59-67

Office Action dated February 12, 2008, p. 3 (emphasis in original).

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). In this case, each and every feature of the presently claimed invention is not identically shown in the cited reference, arranged as they are in the claims.

Amended independent claim 3 recites:

3. A method of balancing demand for networked services in a distributed data processing system, the method comprising the steps of:

initializing one or more local service managers within the distributed data processing system, wherein each local service manager has information about and provides access to networked services defined within a respective local region of the distributed data processing system for clients within the distributed data processing system, and wherein each client is uniquely associated with a local service manager;

initializing one or more distributed service managers within the distributed data processing system, wherein each distributed service manager provides access to networked services to local service managers within the distributed data processing system, and wherein each local service manager is uniquely associated with a distributed service manager;

receiving, at a distributed service manager, a request for a networked service from a local service manager for which the local service lacks information;

determining whether the distributed service manager has information about a networked service with one or more characteristics that match one or more parameters in the request for a networked service, wherein the determining step is accomplished by reference to a cache maintained by the distributed service manager which contains information resulting from prior requests for networked services; and

returning information about a matched networked service.

Masters fails to teach (or suggest) many of the claimed features. While like the present invention, *Masters* is directed to a method of load balancing, it does so by different means and for different purposes. *Masters* is directed to load balancing e-mail traffic over a plurality of alternative message routes that connect a pair of sites each having a plurality of servers in an electronic messaging system by calculating a “cost” associated with each route. (See *Masters*, Abstract) *Masters*, in column 10, line 59 through column 11, line 14, teaches a system of servers that have instances of a directory service database that define which remote sites are reachable from any particular site and how those remote sites may be reached. In contrast, the invention achieves load balancing architecturally, by having “each client uniquely associated with a local service manager”, and “each local service manager uniquely associated with a distributed service manager” to select among available services. The Examiner has not particularly pointed out which elements of *Masters* are deemed to teach these recited features at least in an understandable manner. It is difficult to follow how the citations provided by the Examiner teach the claimed invention. For example, in the rejection to the first element, citing column 10, lines 59-67, the Examiner appears to be equating the local service managers with the directory service in *Masters*, yet if this is true, it is confusing as to why the directory service would be contacting another entity for information as recited in the third element of claim 3, since in *Masters* each directory service has the identical information as any other directory service. In fact, this does not occur in *Masters*. In the rejection to the second element, citing column 11, lines 1-14, the Examiner appears to be equating the distributed service managers with the servers which have a respective copy of the directory service; this interpretation is confusing since the servers do not provide access to the networked services for the directory service, but rather use the directory service to locate remote servers. In the citation allegedly teaching the third element, the Examiner cites column 10, lines 59-67 and column 11, line 61 to column 12, line 13. The former section discusses the directory service and the latter section how a server would use a component of the directory service, the site connector, to locate a bridgehead server. Again, the Applicants do not understand how the Examiner is attempting to relate these passages to the claim language. Finally, in rejecting the last two elements, the Examiner cites the same section of *Masters* apparently equating both the local service manager and the distributed service manager of the Applicants’ invention with the directory service in *Masters*. This rejection is confusing and circular; why would the directory service ask itself about information which is already in its possession and why would it return this information to itself? At any rate, the Applicants argue that the recited limitations are neither taught nor suggested by the reference. The Applicants grant that the reference mentions servers having directories, as well as the directories’ component connection objects, but none of these entities possess the

attributes or relationships as recited by the Applicants' claims. The Examiner is respectfully requested to either clarify or withdraw his rejections.

Nonetheless, to further prosecution of the application, the Applicants have made certain clarifying amendments. Not only are the "local service manager" and "distributed service manager" separate entities in the Applicants' invention, as presently claimed by the Applicants, the local service manager and distributed service manager contain different information about network services.

In addition to the load balancing achieved by having parallel sets of service managers, part of the load balancing in the Applicants' invention is achieved by selectively partitioning information within the respective local service managers and distributed service managers. This information tends to be local with respect to the clients served by the respective local service manager and respective distributed service manager, particularly initially, as compared to services available in the entire distributed data processing system. As recited in claim 3, the local service manager "has information about and provides access to networked services defined within a respective local region of the distributed data processing system", and the distributed service managers "contains information from prior requests for networked services", i.e., about network services that previously satisfied requests from clients associated with the local service managers associated with the respective distributed service manager. Thus, the "information" about the network services within each distributed service manager will gradually encompass a greater portion of the network as each respective set of clients makes requests for network services. The latter limitation is yet another distinction of the invention from *Masters*. In the Applicants' invention, the database maintained by the distributed service manager is populated because of earlier client requests, in other words, the distributed service manager learns about its environment according to the needs of its respective clients. This is unlike the case in *Masters* where every directory service is apparently populated with the identical information about the reachable remote servers. Further, the passage of *Masters* teaches that all servers at one site which have copies of the directory have a complete copy of the directory service database instance on the server. There is no selective populating of the directory as with the Applicants' invention.

At a fundamental level, (and in fairness to the Examiner, some of these distinction are better brought out by the existing and newly added dependent claims), the problems which the Applicants' invention and *Masters* are seeking to solve are different. The Applicants are trying to provide access to a plurality of different services in a heterogeneous distributed environment, wherein the administrator of any particular region of the distributed environment does not necessarily know very much (or care) about other portions of the environment. The Applicants have provided a framework by which the administrator can choose his own rules in the localization module associated with his region of the distributed environment and allow the system to discover other services offered by the network without

having to provide information about all the network services in the directory service *a priori*. In contrast, *Masters* is providing a single service, e-mail, between two locations, but providing multiple routes and multiple servers for load balancing purposes. In the Applicants' invention, where there is more than one service which would provide the desired service, the best one, often the closest in the network, is selected by means of a performance determination. *Masters* is solving a different problem. Since the "destination" e-mail servers servicing a remote client end-user while remote to the "originating" server are necessarily local to the remote client end-user, *Masters* must reach one of the remote "destination" servers which *Masters* indicates would be located in the same "destination site" of the network. All that can be done is to select the best path; he cannot pick a closer server to provide the service to the sending client.

Therefore, for at least the reasons set forth above, Applicants submit that *Masters* fails to anticipate claim 3, as *Masters* fails to teach each and every feature of claim 3. Further, as claims 4-12 and 37 depend from and further restrict claim 3, Applicants submit that claims 4-12 and 37 are also in condition for allowance over the *Masters* reference at least by virtue of their depending from an allowed base claim. Further, claims 4, 6, 7, 12 and 37-40 recite features that are not taught by *Masters*.

Claim 4 recites that local service manager returns "information about a matching networked service from the local service manager to the requesting client. In *Masters*, no information is returned to the client, forwarding the e-mail message is totally transparent to the requestor. The cited sections of *Masters* merely describe the directory service and its component connector object. Note that in the Applicants' claim language the "requesting client" and the "local service manager" are separate entities, otherwise they would not be separately named.

Claim 6 recites the feature of "responsive to a determination that the local service manager does not have information about a matching networked service, forwarding the request for a networked service from the local service manager to a distributed service manager associated with the local service manager." The Office Action alleges that this feature is taught by *Masters* in column 11, lines 1-25. However, this passage of *Masters* merely teaches managing RPC connections across an email system through use of a site connector. Each instance of the site connector identifies only one remote site and describes the connectivity between the local site and the designated remote site. Separate instances of the connector object exist for each remote site to which a potential connection exists. However, this has nothing to do with making a determination as to whether a local service manager has information regarding a matching network service or forwarding a requested for a networked service to a distributed service manager in response to the local service manager not having information regarding a matching network service. The Applicants have already discussed above that the Examiner has not identified entities in *Masters* which correspond to the local service manager and distributed service manager as

recited by their claims. Further, no other passage of *Masters* teaches such a feature. Rather, *Masters* is directed to sending email messages from a source site to a destination site. *Masters* teaches that a destination site of the message is always known and that a path to a server in the site is simply selected. Thus, as taught by *Masters*, assuming *arguendo* that a directory service is analogous to a service manager, a service manager must have information about a matching networked service; all services are identical, e-mail, and thus all must match. Therefore, logically, *Masters* cannot teach the feature of “responsive to a determination that the local service manager does not have information about a matching networked service, forwarding the request for a networked service from the local service manager to a distributed service manager associated with the local service manager.” Therefore, *Masters* fails to anticipate claim 6.

Additionally, claim 7 recites the feature of “responsive to a determination that the distributed service manager does not have information about one or more matching networked services, broadcasting the request for a networked service from the distributed service manager to all distributed service managers in the distributed data processing system.” The Office Action alleges that this feature is taught by *Masters* in column 11, lines 1-14 and column 11, line 61 – column 12, line 34. However, these passages of *Masters* merely teach determining a path from the source to the destination. In contradistinction, claim 7 recites “responsive to a determination that the distributed service manager does not have information about one or more matching networked services, broadcasting the request for a networked service from the distributed service manager to all distributed service managers in the *distributed data processing system*.” Nothing in the cited passage of *Masters* or in any other portion of *Masters* teaches, suggests, or even hints at **broadcasting** the request for a networked service from the distributed service manager **to all distributed service managers in the distributed data processing system**.

Thus, even assuming *arguendo* that somehow determining a route as taught in the cited passage of *Masters* could be equated to broadcasting a request for a networked service, *Masters* still does not teach broadcasting this request to every distributed service manager in the data processing system. Further, as *Masters* teaches connecting to a site and looking for paths to individual servers within a site, *Masters* teaches away from broadcasting the request **to all distributed service managers in the distributed data processing system**. Also, *Masters* fails to teach, suggest, or even hint at “broadcasting the request for a networked service from the distributed service manager to all distributed service managers in the distributed data processing system,” is done in response to “a determination that the distributed service manager does not have information about one or more matching networked services,” as recited in claim 7. Therefore, *Masters* fails to teach the feature of “responsive to a determination that the distributed service manager does not have information about one or more matching networked

services, broadcasting the request for a networked service from the distributed service manager to all distributed service managers in the distributed data processing system.” Thus, *Masters* fails to anticipate claim 7.

Claim 12, as amended, recites that the network metrics are real-time network metrics. The Applicants respectfully point out that the arbitrary “costs” in *Masters* are not identical to the “network metrics” recited in the Applicants’ claims. So technically, the Examiner has not met his burden for an anticipation argument. However, the Applicants concede that it would not be illogical to assign these costs on the basis of the administrator’s knowledge of the network. However, in *Masters*, the costs are assigned at configuration time and do not represent real-time values of the network metrics.

New claim 37 recites the features of “configuring the local service manager to not provide access to object request broker (ORB) services that provide internal service and which are valid only in a scope of a local ORB,” “configuring the local service manager to provide access to ORB services that are instantiated on each ORB only through requests based on an ORB identifier,” and “configuring the local service manager to provide access to ORB services that may be accessed from outside the scope of the local ORB through requests based on both a service specification string and an ORB identifier.” Nothing in *Masters*, teaches, suggests, or even hints at such features. Thus, *Masters* fails to anticipate claim 37.

New claim 38 recites the feature of “determining, based on the request, whether to return a single matched network service of the set of matched network services or the set of matched network services.” *Masters* does not teach to determine whether to return a single matched network service of a set of matched network services or a set of matched network services. Rather, *Masters* simply returns a single server and a single route for connection to the server. Further *Masters* does not teach making any type of determination based on a request for a networked service, as recited in claim 38. Rather, *Masters* determines the target server and route based on a cost-weighted load balancing system. This cost-weighted load balancing is independent of, and has nothing to do with, the message being sent.

New claim 39 recites the feature of “a plurality of types of networked services are available in the distributed data processing system, and wherein one of the characteristics of a matching service is a type of service.” This feature is neither taught nor suggested by *Masters*.

New claim 40 recites the feature of “each of distributed service managers caches information resulting from requests of supported clients, and wherein the information which respective distributed service manager differs according to the requests of supported clients.” This feature is neither taught nor suggested by *Masters*.

New claim 41 recites the feature of “wherein each of the distributed service managers includes a localization module, wherein the parameters within respective localization modules are tailored to provide

different load balancing for corresponding distributed service managers.” This feature is neither taught nor suggested by *Masters*.

Therefore, the rejection of claims 3-12, 15-24, and 27-36 under 35 U.S.C. § 102 has been overcome.

III. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

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